EUGLOH Summer School
Biomedical Data Processing and Artificial Intelligence

July 4th – 8th 2022
Organized by University of Szeged (Hungary)

with the participation of invited speakers from the member universities of the EUGLOH alliance:

Ludwig-Maximilians-Universität München (Germany)
Lund University (Sweden)
Universidade do Porto (Portugal)
Université Paris-Saclay (France)

WHAT CAN YOU LEARN?

To educate students for the use of **modern information technologies** for effective research work and for the dissemination of scientific results from the collected data.

Overview of the basis of **data processing** in different biomedical applications and state-of-the-art examples presented by distinguished scientists from the five participating universities of the EUGLOH alliance.

Introduction to the topic of **artificial intelligence** with a special focus on the multidisciplinary research activities.

Participating students are trained by contact lectures and practical sessions involving the personal use of computers on various topics related to the development of transversal skills:

- (Biomedical) data collection, signal processing and analyses
- Artificial intelligence and machine learning in
  - Natural language processing
  - Biological image analysis
  - Gene expression analysis
- Image processing applications
- From literature knowledge to mechanistic modelling
- Health data science and management
- Statistical decision making
- Dissemination of scientific results
- Data processing in epidemiology
  - Data collection and interpretation, conception and design
  - Population testing and tracing
  - Economic model of optimal lockdown
  - Mathematical modelling of the COVID-19 outbreak
  - Complex economic systems

WHO IS THE TARGET AUDIENCE?

A total number of 30 students (6 from each partner university) from bachelor, master and PhD programs from all faculties of the partner universities of the EUGLOH alliance (University of Szeged, Université Paris-Saclay, Lund University, Ludwig-Maximilians-Universität München, Universidade do Porto). No special background knowledge is required. School is also open for junior and senior scientists of the participating universities.

SELECTION CRITERIA:

1. Motivation: as a primary filter, applicants must submit a motivation letter explaining their motivation to apply for the event (maximum 3000 characters), which will be assessed on a 1-5 scale.

2. Timestamp of application ('first come, first served') will be used as a secondary filter to break possible ties between applicants.

WHAT PEDAGOGICAL METHODS/TOOLS ARE APPLIED?

Personal lectures for students participating in person and online video streaming for distant education. Personal practical sessions by using computer applications for biomedical data analysis, telemedicine, image processing and artificial intelligence. Interactive communication tools, teamwork, networking.

HOW ATTENDENCE IS AWARDED?

EUGLOH Certificate and 4 ECTS will be provided for the students attending personally, and 2 ECTS for students following lectures online.

WHERE ARE THE LECTURERS FROM?

University of Szeged and partner institutions:
– Bolyai Institute, Department of Applied and Numerical Mathematics
– Department of Image Processing and Computer Graphics
– Department of Informatics, Natural Language Processing group
– Department of Medical Physics and Informatics
– Institute of Finance and International Economic Relations
– Biological Research Centre
  - Institute of Biochemistry, Synthetic and Systems Biology Unit, Laboratory of Microscopic Image Analysis and Machine Learning
– Hungarian Centre of Excellence for Molecular Medicine (H-CEMM)
– Extreme Light Infrastructure - Attosecond Light Pulse Source (ELI-ALPS)
– Engineering and Integration Division (ELI-ALPS)

Ludwig-Maximilians-Universität München
– Centre for International Health
– Institute and Outpatient Clinic for Occupational, Social and Environmental Medicine

Lund University
– Department of Cell Death and Metabolism

University of Porto
– Computer Sciences Department
– Community Medicine, Information and Health Decision Sciences
– Medical Physics Department
– Institute of Public Health and National Health Council

Université Paris-Saclay
– Centre d'Etudes des Politiques Economiques de l'Université d'Evry
– Computer Science Department, SUPELEC

WHERE CAN YOU GET INFORMATION?

General information: eugloh@rekt.szte.hu

Academic program: Prof. Ferenc Peták, Department of Medical Physics and Informatics, University of Szeged (EUGLOH, academic leader of Work Package for Research and Innovation), petak.ferenc@med.u-szeged.hu

Administrative support: Eszter Sasi-Pokriva, sasi-pokriva.eszter@med.u-szeged.hu

Registration

Online registration: https://modulo.etr.u-szeged.hu/Modulo2/default/en/invitation/5a49f87b-bc85-4903-9522-3603f26292e3